actifio

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OIOIO

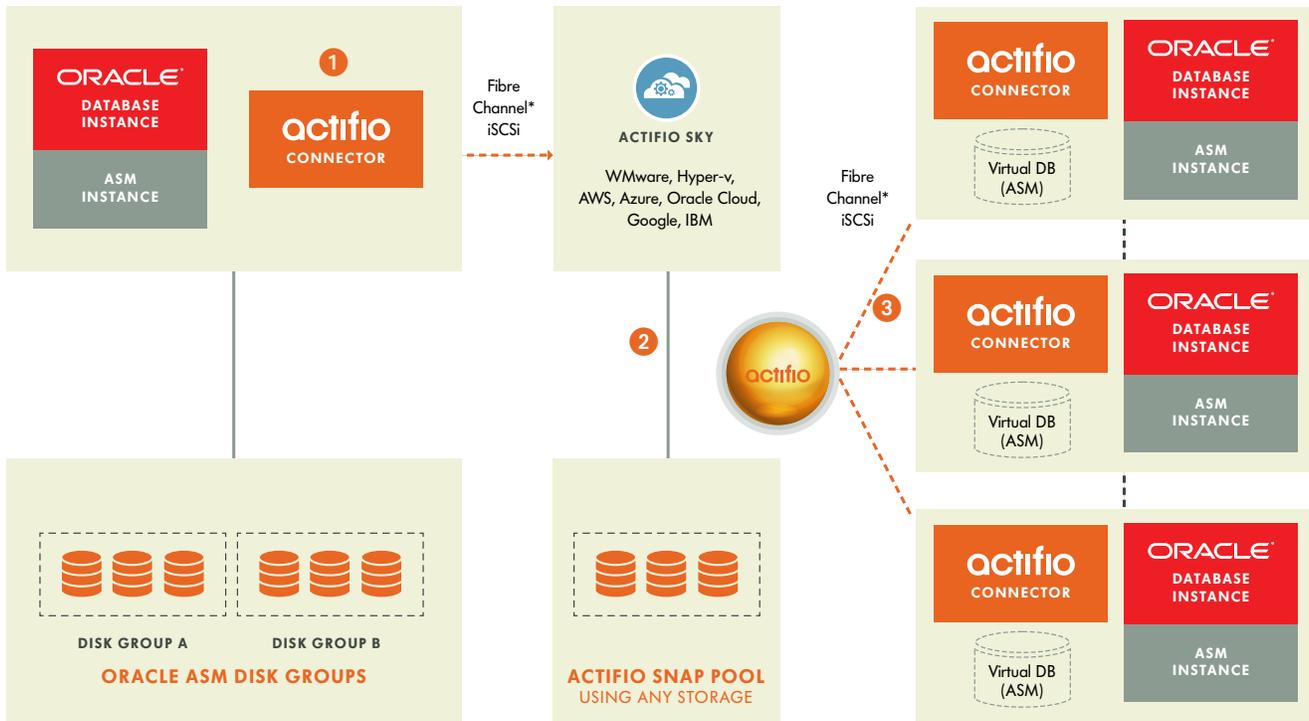# Virtual DB Cloning, Instant Recovery for Oracle ASM Environments

Oracle ASM in stand-alone or RAC environments is a very popular deployment architecture in most enterprises. Actifio provides very rich functionality in these environments.

Actifio provides enterprise grade virtual database cloning, replication, and instant recovery. Actifio Sky DB is a virtual machine appliance deployed in VMware, Hyper-V or any of the major public cloud environments like AWS, Azure, Oracle, Google, and IBM clouds.

Actifio can store data in ASM format or file system format. Most users prefer to provision virtual clones using ASM format in their test environments when production is also ASM, to ensure the test environments match production.

KEY HIGHLIGHTS

1. **Native ASM management** and deep RMAN integration

2. **Instantly provision** virtual database clones to ASM environments in test and UAT environments

3. **Scalable instant recovery** lowers RTO and enables high IOPs transactions post recovery

4. **Incremental forever backup** using Oracle RMAN Block Change Tracking and Image Copy

5. **Switch back from Actifio to production** with near zero downtime using ASM switch and rebalance integration

6. **Replicate and recover instantly** at remote DC or AWS, Azure, Oracle, Google, and IBM cloud

7. **Simple and rapid migration** from filesystem to ASM formats

8. **Flexibility to co-exist** with other backup products or replace them

1. Actifio deploys a lightweight connector in the Oracle database server. The connector's primary function is to communicate with the Oracle DB instance to invoke RMAN APIs and take a database consistent snapshot backup.

   For the first backup, Actifio Sky DB triggers a full RMAN Level 0 image copy. After the first full, Actifio Sky DB does Level 1 incremental forever backups leveraging Oracle RMAN Block Change Tracking. After each incremental backup, Actifio performs an RMAN incremental merge operation with a snapshot of the previous backup to synthesize a new virtual full point in time copy.

2. Actifio Sky DB can use any storage to store these backup images. By default, the data is stored compressed and optionally encrypted in the Actifio "snapshot pool" (also shown as "Gold Copy" in the picture). Actifio Sky DB maintains a history of point-in-time virtual images which are all available to be used without taking any time to merge incrementals.

3. 3) Users, in a self service manner, can browse all available point in time images, and provision virtual database clones instantly to their test machines. The test machines need to have Oracle and optionally ASM instances, and a connector is deployed to these servers as well. At the time of virtual DB clone provisioning, the Actifio connector mounts ASM formatted LUNs from Actifio Sky DB to the test server and communicates with Oracle to bring up the DB Instance automatically. No extra storage is provisioned even in a multi TB virtual DB clone. Extra storage in Actifio Sky DB will be consumed only when users make changes to virtual database clones as part of their testing. Many virtual DB clones can be provisioned rapidly and simultaneously. Changes made to each virtual DB clone are kept private for that database instance only and do not impact any other virtual DB clone.

Virtual Database clones can be refreshed very quickly from production because only changed blocks are captured from the source database to Actifio Sky DB, and no data movement is required from Actifio Sky DB to test machines at the time of the virtual database refresh. Independently of each other, testers can ad-hoc un-provision their existing virtual DB clones, browse to a different (new or old) point in time image, and instantly provision a new virtual database clone. Alternatively they can schedule refreshes for their test environments automatically.

Role based access control with Active Directory and LDAP integration ensures only the right users are given access to provision self service virtual DB clones. For added security, sensitive data can be automatically masked by the Actifio workflow engine using admin supplied masking scripts or existing data masking tools.

In the case of a planned or unplanned downtime, Actifio Sky DB can recover a database instantly and all transactions can run against the recovered database. Using ASM Switch and Rebalance integration, Actifio Sky DB can migrate the online database from storage behind Actifio to production storage with zero down time.

The ability to capture data in ASM format, deeply integrate with ASM Switch & Rebalance, and provision virtual DB clones to ASM environments delivers a highly differentiated and unique solution to enterprises.

ADDITIONAL RESOURCES

- Actifio database cloning / Test Data Management for Oracle databases white paper[1]
- Short 2 minute video on how it works for Oracle[2]
- Short video showing provisioning of 10 virtual DB clones using Actifio and Ansible API integration[3]
- Demo video showing how to provision virtual DB clones using Actifio user interface[4]

1 https://cdn2.hubspot.net/hubfs/214442/Actifio%20Test%20Data%20Management%20For%20Oracle%20Databases%20Technical%20White%20Paper.pdf?t=1497265408904

2 https://actifio.wistia.com/medias/pjnibr3ejo

3 https://actifio.wistia.com/medias/1jq5tis1go

4 https://actifio.wistia.com/medias/1jq5tis1go